

# STORMBUSTER

## A Newsletter for Emergency Managers & Storm Spotters

Fall Edition, 2001



### The Summer of 2001 - Severe Weather

by Hugh Johnson, Meteorologist

The summer began rainy and cool, similar to the summer of 2000. Then, the storm track shifted south, and the rain began missing our area. Severe weather rocked portions of our area several times in June. On the 20<sup>th</sup>, hail as big as hen's eggs pounded portions of the Mid Hudson Valley, damaging cars, buildings and apple orchards. On June 23<sup>rd</sup>, two tornados hit Litchfield County, specifically the towns of Torrington and Washington. Also in Litchfield County, 3 to 6 inch rains fell on June 17<sup>th</sup>, and brought the East Aspetuck River out of its banks.

July began on a stormy note as a strong cold front brought a round of severe weather to the region on the first of the month. Most of the damage was associated with strong wind, but there reports of hail nearly two inches in diameter in Beekman, NY. A microburst near Gardiner in Ulster County brought down trees, damaging cars and homes. Another microburst hit North Adams, MA.

Another round of severe weather struck on Independence Day. A lone thunderstorm produced concentrated damage in and around Hudson Falls on the 9<sup>th</sup>, including damage to the General Electric Building. More scattered severe weather took place the following day. Several homes were hit by lightning during July; some sustained serious fire damage.

A Bermuda High brought the first hot spell of the summer to our region between July 23<sup>rd</sup> and 25<sup>th</sup>, with temperatures reaching 90° or higher each day. In spite of that brief hot spell, July 2001 was the ninth coolest July on record.

August began on the warm side and stayed that way. The worst heat wave in over 5 years took place between August 6<sup>th</sup> and 9<sup>th</sup>. Temperatures officially reached 90° or higher on four straight days. The peak of the heat wave came on the 9<sup>th</sup> when, at 96°, we had the hottest day of the year and a daily record. Even hotter readings were recorded at Poughkeepsie, where

temperatures exceeded 100°. While no 90s were registered at Albany during the remainder of the month, the temperature only once failed to reach 80°. This was a new record, 30 days of 80° or higher in the month of August. August 2001 was the ninth warmest August on record, the warmest since 1947.

Most of the region was bone dry during August. Only 2.10 inches of rain fell at Albany. Some places were even drier. Virtually all of the rain fell from thunderstorm activity. However, despite the dry weather, a lone thunderstorm complex brought torrential rainfall and flooding to portions of the Mid Hudson Valley on August 13<sup>th</sup>. Another such storm brought flash flooding to the cities of Amsterdam and Johnstown on the 20<sup>th</sup>. On August 9<sup>th</sup> (the hot day) a cluster of Lake Ontario enhanced thunderstorms swept through the Mohawk Valley, cutting the largest swath of damage of the summer from the Mohawk Valley east into the Lake George region.

Labor Day weekend, the unofficial end of summer, turned out to be gorgeous across the region but there was a hint of fall in the air.

### Summer of 2001 - Climatology

by Evan Heller, Meteorologist

Some of the climatological highlights of the summer of 2001 in Albany included a hot and cold June, a cool July and a mini heat wave in August.

JUNE Avg. High:	79.2° (0.2 above normal)
Avg. Low:	57.6° (3.0 above normal)
Avg.:	68.4° (1.5 above normal)
Precipitation:	3.78" (0.16 above normal)

The beginning of the meteorological summer (defined as June 1<sup>st</sup>) was marked by cooler than normal temperatures at Albany. The very first day was 10° below normal, with the low temperature of 37° just two shy of a record. It was the only sub-40° temperature event of the season, and was the coolest day of the month. The monthly average high was

very close to the monthly normal, but the monthly average low was a full 3° below the monthly normal. Normal high temperatures the first week of June are in the mid 70s, but the actual highs the first four days failed to break out of the 60s. The daily average temperatures gradually moderated closer to normal levels during the remainder of early June. Rain coupled with an abundance of clouds, resulted in the 11<sup>th</sup> being the first time in a week that the mercury again failed to reach 70°, having topped out at just 69°. Finally, on the 12<sup>th</sup>, temperatures rose above normal for the first time.

Just two days later, on Flag Day (the 14<sup>th</sup>), however, Albany had its first of what would be nine 90°+ days during the summer. The mercury topped out at 91°. It was the only 90°+ day in June, though, and with a mean of 80°, it was the warmest day of the month. June continued to see-saw. The 19<sup>th</sup> and 20<sup>th</sup> saw readings top out in the upper 80s, then on the 21<sup>st</sup>, the high was just 66°. The very next day, the high was 80°, and the next two days were a few degrees cooler than that. The last six days all had highs in the 80s.

Precipitation was abundant the first three days of June, with nearly one third of the month's total. On the 11<sup>th</sup>, the maximum daily precipitation amount for the month was received, 1.10 inches.

Rainfall occurred on 5 days during the last half of the month, with Father's Day (the 17<sup>th</sup>) receiving the brunt (0.59 inches). The total for June was slightly above the normal of 3.62 inches.

JULY Avg. High: 79.8° (4.2 below normal)  
Avg. Low: 57.9° (1.7 below normal)  
Avg.: 68.9° (2.9 below normal)  
Precipitation: 3.52" (0.34 above normal)

June started out cool, but July stole the show. It wound up in a tie for the ninth coolest July on record at Albany. These records go back to the early 1800s. Both the average high and average low for the month were only about a half a degree warmer than for June. Normally, July is about 5° warmer than June.

The second month of summer opened with 1.19 inches of rainfall, in association with thunderstorms. This total was a new daily precipitation record for the 1<sup>st</sup> of the month, and the only such record established all summer. That was one third of the month's total rainfall right off the bat.

July was almost as variable in temperature as June, but only on the 2<sup>nd</sup> did temperatures fail to reach 70°. The high was 69. With a mean of 59°, this was also the coolest day of the month. Normal highs during July are between 83 and 85°. This threshold was reached on less than 10 days during the month,

although high temperatures of 80° or higher occurred during more than half the days of the month. Not quite as pivotal to contributing to the cool status of the month were the low temperatures. Normally, they are between 58° and 60° during July. Half of the month saw low temperatures as much as 10° below 58°, while only one day saw the mercury stay up in the 70s - the 24<sup>th</sup>. Lows were between 65° and 69° on just three days. Cool as it was on the whole, there were three consecutive days, from the 23<sup>rd</sup> to the 25<sup>th</sup>, during which the mercury topped out in the lower and mid 90s. The 24<sup>th</sup> would become the hottest day of the month as the mercury proceeded to max out at 95°. The mean of 83.5° that day was the only 80°+ daily mean for the month. Despite some of the daily extremes, there were no new daily temperature records established during the month of July.

There was a significant dry gap between rain events on the 17<sup>th</sup> and 26<sup>th</sup>, but the .92 inches which fell on the 26<sup>th</sup> was a very welcome relief. The third highest daily rain amount occurred on July 4<sup>th</sup>, with 0.44 inches picked up in thunderstorms.

Summing up July, it was a very cool month, with, like June, precipitation amounts slightly above normal.

AUGUST Avg. High: 84.7° (3.3 above normal)  
Avg. Low: 62.7° (4.9 above normal)  
Avg.: 73.7° (4.1 above normal)  
Precipitation: 2.10" (1.37 below normal)

August was a complete turnaround from July in Albany, with temperatures significantly above normal, and precipitation over an inch short of normal.

The majority of the summer's 90° temperature events occurred in August. There was a high of 91° on the 2<sup>nd</sup>, and then there was a heat wave from the 6<sup>th</sup> to the 9<sup>th</sup>, when mercuries topped out in the lower and mid 90s each day. The hottest days were the 8<sup>th</sup> and the 9<sup>th</sup>, with a record high of 96° on the latter. The mean was 84.0° both days, thus the two dates are tied for the hottest day of the summer. The record high on the 9<sup>th</sup> was the only new daily temperature record established during the summer of 2001. The night before, the low was a muggy 75°, yet it was still 3° short of a record. It was the warmest night of the summer. The heat was broken on the 10<sup>th</sup>, but the thermometer still managed to register highs of 80° or above every day of the month except one, the 12<sup>th</sup>, when the high was just 75°. The coolest day of the month was the 25<sup>th</sup>, with a mean of 65°. It was one of only three days during August where temperatures were below normal. The overall result was that

August 2001 became Albany's 36<sup>th</sup> hottest month on record.

Measurable rainfall was fairly spread out, occurring on only 7 days during the month. The wettest day was the very last day of meteorological summer (August 31<sup>st</sup>); 0.78 inches was received.

### **Fall marks a Transition**

by Bob Kilpatrick - Hydrometeorologist

Many warmer parts of the world have a two-season climate. They have Wet Season and Dry Season. These trends occur over parts of Latin and Central America, Africa south of the Sahara, the Middle East, and, if a third (cool) season is included, the Indian subcontinent. Here in the Northeast, we usually enjoy adequate moisture every month of the year. But we do have a definite wet and dry season as far as the rivers and streams go due to the effects of our climate on the vegetation that covers most of our area.

The first half of Fall is part of the dry season. It is not bone and baking dry like the inferno of Latin America or Spain but reflects the depletion of moisture which results from summer. At the start of Solar Summer (June 20) the sun is over the Tropic of Cancer, which is as far north as it gets. At the start of Fall the sun is over the equator. Temperatures lag a month or so behind the sun due to the enormous amount of heat stored in the oceans and other large bodies of water. The Japan Current or Kuroshio circulates warm water around the North Pacific, which has a substantial effect on the air masses over North America since most of them have to cross the Pacific and cold air masses are substantially affected by warm water—as we all know from the Lake Effect snows we get in December and January. Even the icy Bering Sea does warm up some—observations the last day or two show water temperatures in the mid 40s. During winter much of the Bering sea freezes over.

As the nights get longer with the sun farther south, radiational cooling sets in and, usually, an Arctic airmass will make a visit during early or mid September with a hard frost. This frost triggers the trees and shrubs to end their summer season, so the green leaves are often replaced by yellow, red, or brown, and then the leaves fall off—hence the name “fall” for the season. With the lack of leaves and cooler temperatures, the amount of moisture lost from the ground by evaporation drops drastically during September and October.

By late October into November, the moisture that comes down as rain is recharging the soil—much like charging a battery. Often, much of the ground moisture is replenished by Thanksgiving time. So what does all this mean?

During September and early October, streams in the Northeast are usually at their lowest flows of the year. The US Geological Survey chooses to start the “Water Year” on October 1 for this reason. However, in late October and November, the streamflows usually increase substantially. The amount of flow differs from stream to stream, and on many larger rivers reservoirs affect this trend since they store water to use when needed or desired. The water tables sometimes take longer to react but often rise during late October and November as moisture from the rain makes its way down through the soil. Some of this water emerges as springs to provide what hydrologists call base flow as opposed to runoff which is a direct result of rainfall.

Lets look at a typical river; for example the Schoharie Creek, above the Schoharie Water Supply Reservoir. During the summer “dry” season the average streamflow at Prattsville is about 0.5 cubic feet per second per square mile. During the fall this increases to 0.75 for September, 1.25 for October, 2.0 for November and 2.25 for December.

Floods in Fall are relatively uncommon. There are two major types of weather events that cause them. One type is a Tropical Storm, or more commonly, the remains of one. A typical tropical storm will pump in huge amounts of moisture from the Gulf of Mexico or the Gulf Stream area of the Atlantic. Therefore, it can bring 5 to 10 inches of rain within a couple of days. When the ground is dry it can soak up three or four inches, but the remainder will run off. The other frequent cause of floods is a slow-moving or stalled cyclone, especially when late in the season. It can cause two to four inches of rain to fall after the combination of cool weather and rain has recharged some of the ground moisture. The ground no longer has room to soak up three or four inches, but can hold only an inch or two. History has shown that more than an inch of excess water will bring many streams and rivers to bankfull or slightly over. Some of our region's worst floods have been from the remains of hurricanes. They include the devastating flood of November 1927, the New England hurricane of September 1938, Hurricanes Connie and Dianne, which came a week apart in 1955, and more recently, Hurricane Floyd in September 1999.

## WCM Words

by Dick Westergard

As usual, check the mailing label on this issue of StormBuster. It contains the date of your last training. If that date is more than 2 years ago, you should plan to attend another training session soon. Once that date is more than 5 years in the past, your name will be purged from our database.

This issue we had no spotter authors. I guess summer was a busy time for everyone. I invite our readers to submit articles, or ideas for articles, for future issues. The next issue is expected during the first half of December. What would you like to see in your newsletter? Drop us an e-mail or a snailmail.

Winter Weather Awareness Week in New York and Vermont is November 4 through 10. Visit our web site for tips on how to prepare for winter.

As Fall leads us toward Winter, here is a reminder of what we'd like you to call us about. 1) Snowfall of 4 inches or more in 24 hours. 2) Any Freezing rain or drizzle. 3) One inch or more of rain in 4 hours or less. 4) Ice jams or Flooding, including bankfull or near bankfull streams. 5) Damaging winds. 6) Measured rainfall - 1.5 inches or more in 4 hours. Please get your reports to the National Weather Service by the quickest means possible. Submit your severe weather reports at:

<http://web.nws.cestm.albany.edu/Severe%20Wx/severereport.htm>

E-Mail: [RICHARD.WESTERGARD@noaa.gov](mailto:RICHARD.WESTERGARD@noaa.gov)

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**Fall advanced Spotter Training** sessions will be held in nine locations this year:

Monday, October 15, 7 p.m. to 9 p.m., auditorium, CESTM, Fuller Rd and Washington Ave, Albany.

Wednesday, October 17, 6:30 to 8:30 p.m., Goshen Town Hall, routes 4 and 63, Goshen, CT.

Thursday, October 18, 7 to 9 p.m., Schoharie County public safety building, Schoharie, NY.

Saturday, October 20, 10 a.m. to Noon, Warren County municipal center, sheriff's meeting room, route 9, Queensbury, NY.

Tuesday, October 23, 7 to 9 p.m., hose number 5 fire house, Ulster Avenue, Kingston, NY.

Thursday, October 25, 7 to 9 p.m., Richmond Town Hall, 41, Richmond, MA.

Thursday, November 1, 6:30 to 8:30 p.m., Townshend Town Hall, route 30, Townshend, VT.

Wednesday, November 14, 6:30 to 8:30 p.m., Herkimer County BOCES, East Herkimer, NY.

Thursday, November 15, 7 to 9 p.m., at CESTM

Only people who have attended basic SkyWarn spotter training should attend these advanced sessions. Pre registration is required - at 518-435-9580, menu option 7, or <http://web.nws.cestm.albany.edu>

[/Special%20Prog/skywarn1.html#join](http://web.nws.cestm.albany.edu/Special%20Prog/skywarn1.html#join). You will be asked to leave your name, a telephone number, and the session you plan to attend. Important, you must use a touch tone phone to pre register, and once you have pre registered, you will only be contacted if the session has been cancelled, or is full. See you there!